Carrier
United Technologies
turn to the experts

30RB/RQ 017-033

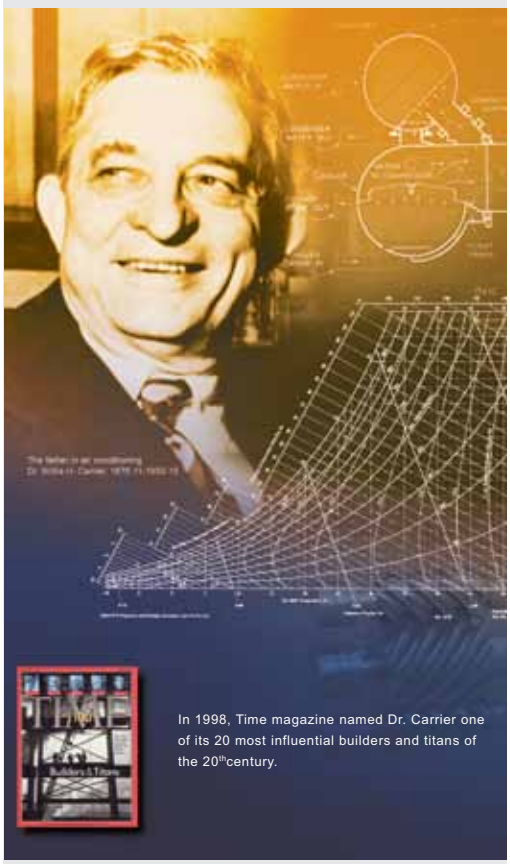
Air-Cooled Liquid Chiller
Reversible Air-To-Water Heat Pump

30RB: Nominal cooling capacity: 18.8~35.5 kW
30RQ: Nominal cooling capacity: 18.5~34.3 kW
Nominal heating capacity: 20.1~36.2 kW

Carrier China

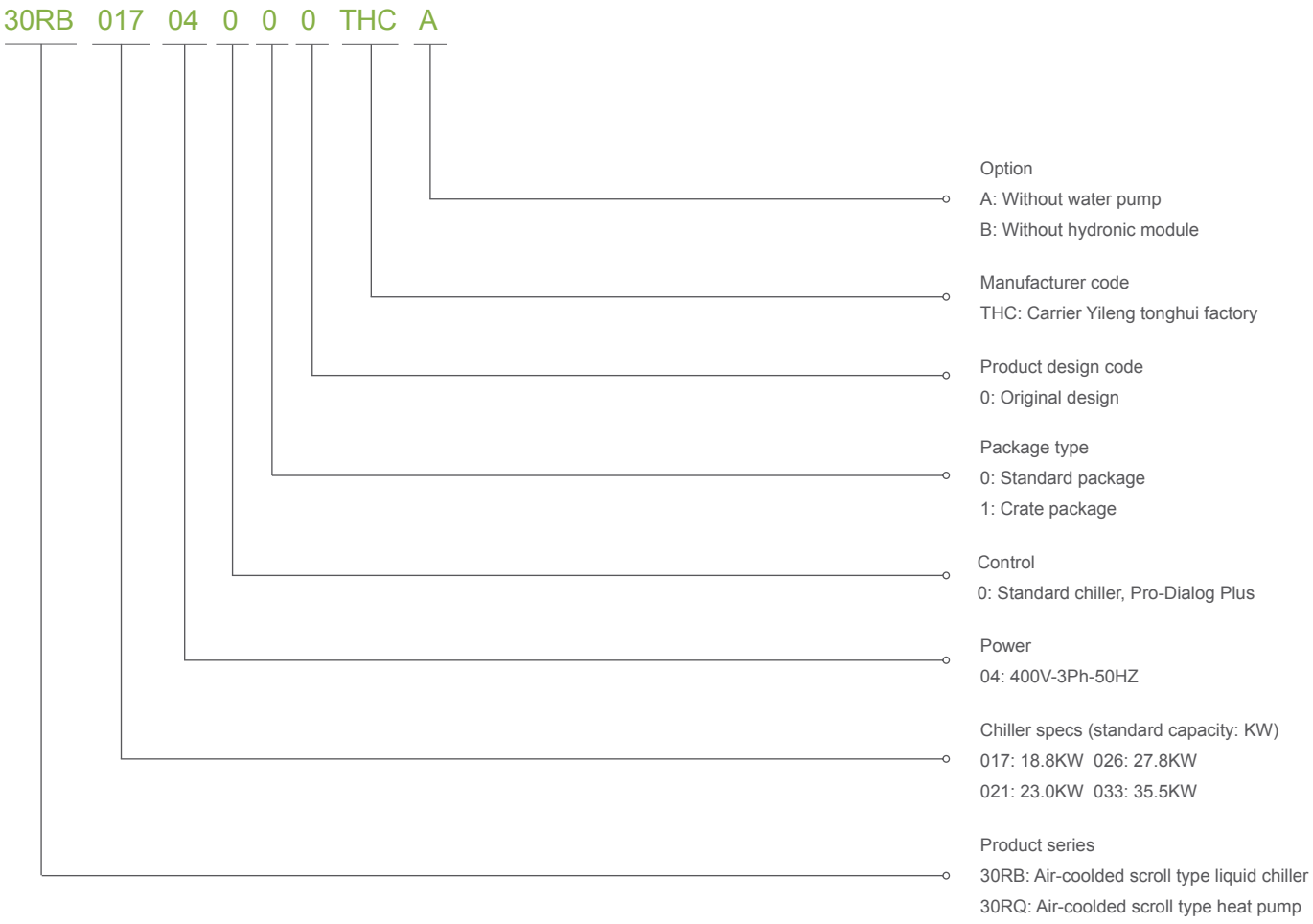
Carrier Corporation is a subsidiary of the United Technologies Corp. (UTC), which ranks the 150th in Fortune Top 500 in 2011 and has its operations in aerospace and building systems industries all over the world. From the time the founder Dr. Carrier invented the first system of modern air conditioning in 1902, Carrier has been the world leader in the air conditioning industry with its products and system solutions supplied to numerous famous buildings, and up to now, the network of distribution cover more than 170 countries all over the world. In 2011, Carrier ranked top in the HVAC industry field with its sales revenue of US $12 billion.

In China, there are 6 Carrier factories which have more than 2500 employees. As the world-class factory, Carrier has a number of technically advanced production lines, manufacturing commercial and residential chillers, compressors and air-side products. A wide range of products are able to meet diversified requirements of different customers. The global R&D center located in Shanghai has the capability of developing several major projects in the same time, with many advanced technical patents awarded to support Carrier stay most competitive in terms of technology advantage in the HVAC industry.



In 1998, Time magazine named Dr. Carrier one of its 20 most influential builders and titans of the 20th century.

Model number Nomenclature



Automatic water fill valve(Option) 30RH0W1803

Note:1. The Pro-Dialog Plus controller is packed independently from the chiller. In the casing, it includes a Pro-Dialog Plus controller(Human machine interface), a remote controller and an interlock controller of fan coil

2. The control module of fan coil interlockconfigured in the chiller can control 8 fan coils maximum. If it's over 8 units, you should buy additional modules

Nominal Cooling/Heating Capacity

30RB017-033: 18.8~35.5kW 30RQ017-033: 18.5~34.3/20.1~36.2kW

Features

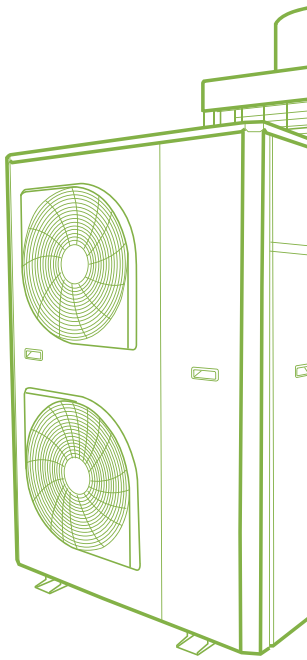
- The new generation of Aquasnap liquid chillers/heat pumps was designed for commercial and light commercial applications such as the air conditioning of office, hotel, villa and apartment etc.

Benefits

- Environmentally sound refrigerant HFC-410A of zero ozone depletion potential.
- High full load energy efficiency leads to extremely low operating cost.
- Low operating sound with no intrusive low-frequency noise, creates a better working/living environment.
- Standard unit with hydronic module, easy and fast installation to save time, space and money.
- Exceptional endurance tests ensure superior reliability to minimize chiller down-time.

Quiet operation

- Compressors
  - Low noise scroll compressors with low vibration levels.
  - The compressor assembly is installed on an independent chassis and supported by anti-vibration mountings.
- Air Heat exchanger section
  - Vertical air heat exchanger coils
  - Anti-vibration protection grilles protect the heat exchanger against possible shocks.
  - The latest generation low-noise fans are now even quieter and do not generate intrusive low-frequency noise.
  - Rigid fan installation for reduced start-up noise.



Environmental care

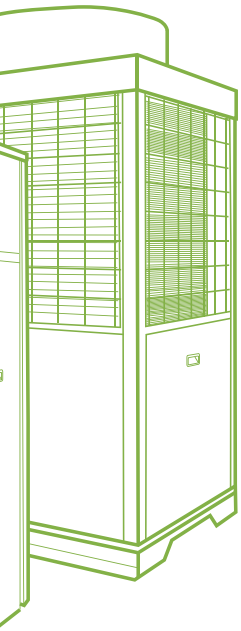
- Ozone-friendly R410A refrigerant
  - Chlorine-free refrigerant of the HFC group with zero ozone depletion potential.
  - High-density refrigerant, therefore less refrigerant required.
  - Very efficient - gives an increased energy efficiency ratio.
- Leak-tight refrigerant circuit
  - Brazed refrigerant connections for increased leaktightness.
  - Verification of pressure transducers and temperature sensors without transferring refrigerant charge.

Puron

Superior reliability

- State-of-the-art concept
  - Cooperation with specialist laboratories and use of limit simulation tools (finite element calculations) for the design of the critical components, e.g. motor supports, suction/discharge piping etc.
- Auto-adaptive control
  - Control algorithm prevents excessive compressor cycling and permits reduction of the water quantity in the hydronic circuit (Carrier patent).
- Exceptional endurance tests
  - Corrosion resistance tests in salt mist in the laboratory.
  - Accelerated ageing test on components that are submitted to continuous operation: compressor piping, fan supports.
  - Transport simulation test in the laboratory on a vibrating table.

Economical operation



- Increased energy efficiency
  - The exceptionally high energy efficiency of the Aquasnap unit is the result of a long qualification and optimization process.
  - High efficiency, specially designed for R410A.
  - New condenser fan motor, energy consumption reduced by 10~30%.
  - Advanced Pro-Dialog Plus auto-adaptive control may reset.
- LWT in response to cooling load variation which will keep chiller operating economically
  - Patented defrost control algorithm reduced the defrost cycle duration by an average of 50%.
- Reduced maintenance costs
  - Maintenance-free scroll compressors.
  - Fast diagnosis of possible incidents and their history via the Pro-Dialog plus control.
  - R410A refrigerant is easier to use than other refrigerant blends.

Easy and fast installation

- Integrated hydronic module
  - High pressure centrifugal water pump.
  - High-capacity membrane expansion tank ensures pressurization of the water circuit.
- Physical features
  - With its small footprint the unit blends in with any architectural styles.
  - The unit is enclosed by easily removable panels, covering all components (except air heat exchanger and fans).
- Simplified electrical connections
  - A single power supply point.
  - Transformer for safe 24 V control circuit supply included.
- Fast commissioning
  - Systematic factory operation test before shipment.
  - Quick-test function for step-by-step verification of the instruments, electrical components and motors.

Pro-Dialog Plus Control

Pro-Dialog Plus combines intelligence with operating simplicity. The control constantly monitors all machine parameters and precisely manages the operation of compressors, expansion devices, fans and of the evaporator water pump for optimum energy efficiency.

User-friendly interface

- The new backlighted LCD interface includes a manual control potentiometer to ensure legibility under any lighting conditions. The information is in clear text and can be displayed in English.
- Unit uses intuitive tree-structure menu, similar to the Internet navigators. They are user-friendly and permit quick access to the principal operating parameters: number of compressors operating, suction/discharge pressure, compressor operating hours, set point, air temperature, entering/leaving water temperature.

Pro-Dialog Plus interface

Advanced control function

- Unit provides different control mode including LOCAL/REMOTE/CCN.
- Unit control function including: Unit ON/OFF, dual set point control, demand limit control, user safety interlock,water pump control, operation indication, circuit alarm and alert etc.
- Enable automatic reset of leaving water temperature according to return water temperature or outside air temperature to ensure optimum energy efficiency.
- Control algorithm prevents excessive compressor cycling and permits reduction of the water quantity in the hydronic circuit (Carrier patent).

Powerful diagnostics

- Unit can perform a quick test (manually or automatically) of all unit components and control points to verify the correct operation of unit
- Real-time monitor all the controls and operation parameter, alarm when necessary.
- Control system includes RS485 serial communication port for remote diagnosis or special diagnosis tools.

Sufficient safety measures

- Password protection in case of mishandling
- Unit is protected against: compressor reverse, low chilled water temperature, high/low refrigerant pressure, motor overload, evaporater anti-freeze protection,etc.

Group control

- Master/slave control of two chillers operating in parallel with operating time equalization and automatic changeover in case of a unit fault.
- Communication with other Building Administration System (BAS) by selecting BacNet/J-Bus/LonTalk gateway.

Technical Specifications

Performance data

30RB	30RB	017	021	026	033
Nominal cooling capacity	kW	18.8	23.0	27.8	35.5
Power input	kW	5.9	7.3	8.9	11.5
EER	kW/kW	3.19	3.15	3.12	3.09
Unit weight					
Standard unit with hydronic module	kg	200	225	310	330
Unit without hydronic module	kg	180	205	285	310
Refrigerant		HFC-410A			
Charge amount	kg	5.3	5.5	6.5	8.7
Compressor		Hermetic scroll compressor			
Quantity		1	1	1	1
Control		Pro-Dialog Plus			
Condensor		Grooved copper tubes and hydrophiilc aluminium foils			
Fans		Two-speed axial fans			
Quantity		2	2	1	1
High speed	rpm	880	880	720	720
Evaporator		Brazed plate heat exchanger			
Nominal water flow	l/s	0.9	1.1	1.3	1.7
System internal water pressure drop	kPa	62	59	71	72
Integrated hydronic module		Water pump, safety valve, expansion tank, flow switch, automatic air purge valve			
Water pump		Horizontal centrifugal pump			
Quantity		1	1	1	1
Water head external to chiller	kPa	170	233	196	207
Expansion tank capacity	l	5	5	8	8
Maximum water-side operating pressure	kPa	500	500	500	500
Maximum water-said operating pressure (unit without hydronic module)	kPa	1000	1000	1000	1000
Water filling pressure	kPa	150	150	150	150
Max. height difference for water system	m	20	20	20	20
Water connection diameter		DN32	DN32	DN32	DN32
Electrical data					
Main power supply		400V-3Ph-50Hz			
Control power supply		Via internal transformer			
Nominal unit operating current	A	10.5	13.1	16.0	20.0
Pump power	W	550	750	750	1100

* Nominal cooling mode - evaporator entering/leaving water temperature 12/7°C, outside air temperature 35°C;
Evaporator fouling factor 0.018m^2K/kW.

Technical Specifications

Performance data

30RQ	30RQ	017	021	026	033
Nominal cooling capacity	kW	18.5	22.2	27.0	34.3
Power input, cooling mode	kW	6.0	7.2	8.7	11.1
EER	kW/kW	3.08	3.08	3.10	3.09
Nominal heating capacity	kW	20.1	24.8	29.6	36.2
Power input, heating mode	kW	6.3	7.4	9.3	11.3
COP	kW/kW	3.19	3.35	3.18	3.20
Unit weight					
Standard unit with hydronic module	kg	215	255	330	350
Unit without hydronic module	kg	195	235	305	325
Refrigerant		HFC-410A			
Charge amount	kg	6.0	7.5	8.0	9.0
Compressor		Hermetic scroll compressor			
Quantity		1	1	1	1
Control		Pro-Dialog Plus			
Air heat exchanger		Grooved copper tubes and hydrophiilc aluminium foils			
Fans		Two-speed axial fans			
Quantity		2	2	1	1
High speed	rpm	880	880	720	720
Water heat exchanger		Brazed plate heat exchanger			
Nominal water flow, cooling mode	l/s	0.9	1.1	1.3	1.6
Nominal water flow, heating mode	l/s	1.0	1.2	1.4	1.7
System internal water pressure drop, cooling mode	kPa	60	56	67	68
System internal water pressure drop, heating mode	kPa	70	67	78	74
Integrated hydronic module		Water pump, safety valve, expansion tank, flow switch, automatic air purge valve			
Water pump		Horizontal centrifugal pump			
Quantity		1	1	1	1
Water head external to chiller, cooling mode	kPa	172	240	205	213
Water head external to chiller, heating mode	kPa	156	217	175	203
Expansion tank capacity	l	5	5	8	8
Maximum water-side operating pressure	kPa	500	500	500	500
Maximum water-side operating pressure (unit without hydronic)	kPa	1000	1000	1000	1000
Water filling pressure	kPa	150	150	150	150
Max. height difference for water system	m	20	20	20	20
Water connection diameter		DN32	DN32	DN32	DN32
Electrical data					
Main power supply		400V-3Ph-50Hz			
Control power supply		Via internal transformer			
Nominal unit operating current, cooling mode	A	10.6	12.5	15.5	19.7
Nominal unit operating current, heating mode	A	11.0	13.0	16.2	19.9
Pump power	W	550	750	750	1100

* Nominal cooling mode - evaporator entering/leaving water temperature 12/7°C, outside air temperature 35°C;
Nominal heating mode - water heat exchange entering/leaving water temperature 40/45°C, outside air temperature 7°C;
Water heat exchanger fouling factor 0.018m^2K/kW.

Cooling Capacities, 30RB

Model		Outside air temperature ℃														
		25			30			35			40			45		
	LWT	CAP	POWER	FLOW	CAP	POWER	FLOW	CAP	POWER	FLOW	CAP	POWER	FLOW	CAP	POWER	FLOW
	℃	kW	kW	l/s	kW	kW	l/s	kW	kW	l/s	kW	kW	l/s	kW	kW	l/s
017	5	19.6	4.7	0.9	18.6	5.2	0.9	17.6	5.8	0.8	16.5	6.5	0.8	15.4	7.2	0.7
021	5	24.2	6.1	1.2	23.0	6.6	1.1	21.6	7.3	1.0	20.1	8.0	1.0	18.6	8.7	0.9
026	5	29.1	7.2	1.4	27.5	8.1	1.3	26.2	8.8	1.3	24.5	9.6	1.2	22.8	10.4	1.1
033	5	37.8	9.0	1.8	35.4	10.4	1.7	33.5	11.3	1.6	31.5	12.2	1.5	29.4	13.1	1.4
017	6	20.3	4.7	1.0	19.2	5.2	0.9	18.2	5.9	0.9	17.1	6.5	0.8	15.9	7.2	0.8
021	6	24.8	6.2	1.2	23.7	6.7	1.1	22.3	7.3	1.1	20.8	8.1	1.0	19.2	8.8	0.9
026	6	29.9	7.3	1.4	28.4	8.2	1.4	27.0	8.9	1.3	25.3	9.7	1.2	23.5	10.5	1.1
033	6	38.9	9.1	1.9	36.5	10.5	1.7	34.5	11.4	1.6	32.4	12.3	1.6	30.3	13.2	1.4
017	7	20.9	4.8	1.0	19.9	5.3	1.0	18.8	5.9	0.9	17.6	6.6	0.8	16.4	7.3	0.8
021	7	25.4	6.2	1.2	24.5	6.7	1.2	23.0	7.3	1.1	21.4	8.1	1.0	19.8	8.8	0.9
026	7	30.6	7.4	1.5	29.1	8.3	1.4	27.8	8.9	1.3	26.0	9.8	1.2	24.2	10.6	1.2
033	7	39.8	9.2	1.9	37.6	10.6	1.8	35.5	11.5	1.7	33.4	12.4	1.6	31.2	13.3	1.5
017	8	21.6	4.8	1.0	20.5	5.3	1.0	19.4	5.9	0.9	18.2	6.6	0.9	17.0	7.3	0.8
021	8	26.1	6.3	1.3	25.2	6.8	1.2	23.7	7.5	1.1	22.1	8.2	1.1	20.5	8.9	1.0
026	8	31.4	7.5	1.5	29.8	8.3	1.4	28.6	9.1	1.4	26.8	9.9	1.3	24.9	10.7	1.2
033	8	40.9	9.3	2.0	38.7	10.7	1.8	36.6	11.6	1.7	34.4	12.5	1.6	32.1	13.5	1.5
017	9	22.3	4.8	1.1	21.2	5.3	1.0	20.0	6.0	1.0	18.8	6.7	0.9	17.5	7.4	0.8
021	9	26.8	6.3	1.3	26.0	6.8	1.2	24.4	7.5	1.2	22.8	8.2	1.1	21.1	9.0	1.0
026	9	32.2	7.6	1.5	30.7	8.4	1.5	29.5	9.2	1.4	27.6	10.0	1.3	25.7	10.8	1.2
033	9	42.1	9.4	2.0	39.8	10.8	1.9	37.6	11.7	1.8	35.4	12.6	1.7	33.1	13.6	1.6
017	10	23.0	4.9	1.1	21.8	5.4	1.0	20.6	6.0	1.0	19.4	6.7	0.9	18.1	7.4	0.9
021	10	27.6	6.4	1.3	26.8	6.9	1.3	25.2	7.6	1.2	23.4	8.3	1.1	21.8	9.0	1.0
026	10	33.1	7.7	1.6	31.8	8.5	1.5	30.4	9.3	1.5	28.4	10.1	1.4	26.5	10.9	1.3
033	10	43.2	9.5	2.1	40.9	10.9	2.0	38.7	11.8	1.8	36.4	12.8	1.7	34.0	13.7	1.6

Note: LWT-Leaving chilled water temperature
CAP-Cooling capacity
POWER-Chiller input power
FLOW-Water flow rate

Cooling Capacities, 30RQ

Model		Outside air temperature ℃														
		25			30			35			40			45		
	LWT	CAP	POWER	FLOW	CAP	POWER	FLOW	CAP	POWER	FLOW	CAP	POWER	FLOW	CAP	POWER	FLOW
	℃	kW	kW	l/s	kW	kW	l/s	kW	kW	l/s	kW	kW	l/s	kW	kW	l/s
017	5	19.1	4.5	0.9	17.9	5.3	0.9	16.7	5.9	0.8	15.6	6.6	0.7	14.5	7.3	0.7
021	5	22.8	5.9	1.1	21.5	6.4	1.0	20.7	7.1	1.0	18.5	7.8	0.9	17.2	8.5	0.8
026	5	27.1	7.5	1.3	26.1	8.1	1.2	25.1	8.6	1.2	23.6	9.4	1.1	20.4	10.3	1.0
033	5	36.2	8.9	1.7	34.3	10.1	1.6	32.4	10.9	1.6	30.5	11.8	1.5	28.5	12.8	1.4
017	6	19.7	4.5	0.9	18.6	5.3	0.9	17.5	6.0	0.8	16.3	6.7	0.8	15.1	7.4	0.7
021	6	23.5	5.9	1.1	22.3	6.5	1.1	21.4	7.2	1.0	19.7	7.9	0.9	17.8	8.6	0.9
026	6	27.9	7.6	1.3	27.1	8.1	1.3	26.2	8.6	1.3	24.6	9.5	1.2	21.3	10.4	1.0
033	6	37.3	9.0	1.8	35.3	10.2	1.7	33.4	11.0	1.6	31.4	11.9	1.5	29.4	12.9	1.4
017	7	20.2	4.6	1.0	19.1	5.4	0.9	18.5	6.0	0.9	17.2	6.7	0.8	15.7	7.4	0.8
021	7	24.1	6.0	1.2	23.1	6.5	1.1	22.2	7.2	1.1	20.4	7.9	1.0	18.5	8.6	0.9
026	7	28.8	7.6	1.4	27.9	8.2	1.3	27.0	8.7	1.3	25.4	9.6	1.2	22.1	10.4	1.1
033	7	38.3	9.1	1.8	36.3	10.2	1.7	34.3	11.1	1.6	32.3	12.0	1.5	30.2	13.0	1.4
017	8	21.1	4.6	1.0	19.8	5.4	0.9	19.0	6.0	0.9	17.9	6.7	0.9	16.2	7.4	0.8
021	8	24.9	6.1	1.2	23.7	6.6	1.1	22.8	7.2	1.1	21.2	8.0	1.0	19.2	8.7	0.9
026	8	29.8	7.7	1.4	28.7	8.3	1.4	27.8	8.8	1.3	26.1	9.6	1.2	22.9	10.5	1.1
033	8	39.4	9.2	1.9	37.3	10.3	1.8	35.3	11.2	1.7	33.2	12.1	1.6	31.0	13.1	1.5
017	9	21.9	4.7	1.0	20.6	5.4	1.0	19.6	6.1	0.9	18.4	6.7	0.9	16.8	7.5	0.8
021	9	25.8	6.2	1.2	24.5	6.6	1.2	23.5	7.3	1.1	21.8	8.0	1.0	19.8	8.7	0.9
026	9	30.7	7.7	1.5	29.5	8.3	1.4	28.5	8.8	1.4	26.8	9.7	1.3	23.7	10.6	1.1
033	9	40.6	9.3	1.9	38.3	10.4	1.8	36.3	11.3	1.7	34.1	12.2	1.6	31.9	13.2	1.5
017	10	22.8	4.7	1.1	21.3	5.4	1.0	20.1	6.1	1.0	18.9	6.8	0.9	17.1	7.5	0.8
021	10	26.8	6.3	1.3	25.5	6.7	1.2	24.1	7.3	1.2	22.6	8.1	1.1	20.6	8.8	1.0
026	10	31.8	7.8	1.5	30.6	8.4	1.5	29.3	8.9	1.4	27.5	9.7	1.3	24.5	10.6	1.2
033	10	41.8	9.3	2.0	39.4	10.5	1.9	37.3	11.4	1.8	35.0	12.3	1.7	32.7	13.3	1.6

Note: LWT-Leaving chilled water temperature
CAP-Cooling capacity
POWER-Chiller input power
FLOW-Water flow rate

Heating Capacities, 30RQ

Model	LWT	Outside air temperature C																	
		10			7			0			-5			-10			-15		
		CAP	POWER	FLOW	CAP	POWER	FLOW	CAP	POWER	FLOW	CAP	POWER	FLOW	CAP	POWER	FLOW	CAP	POWER	FLOW
	℃	kW	kW	l/s	k W	kW	l/s	kW	kW	l/s	kW	kW	l/s	kW	kW	l/s	kW	kW	l/s
017	30	22.0	4.6	1.1	21.0	4.5	1.0	17.1	4.5	0.8	15.4	4.5	0.7	14.5	4.4	0.7	12.4	4.4	0.6
021	30	27.3	5.5	1.3	25.9	5.5	1.2	21.5	5.4	1.0	19.8	5.4	0.9	18.6	5.3	0.9	15.1	5.2	0.7
026	30	32.6	6.7	1.6	31.0	6.7	1.5	25.6	6.6	1.2	22.9	6.6	1.1	20.7	6.4	1.0	17.5	6.3	0.8
033	30	40.1	8.6	1.9	38.1	8.5	1.8	31.9	8.4	1.5	28.3	8.2	1.4	23.5	8.1	1.1	19.8	8.1	0.9
017	35	21.7	5.2	1.0	20.7	5.1	1.0	16.4	5.1	0.8	14.9	5.1	0.7	13.9	5.0	0.7	11.6	4.9	0.6
021	35	26.9	6.2	1.3	25.5	6.1	1.2	20.8	6.1	1.0	19.2	6.0	0.9	17.8	5.9	0.9	14.2	5.9	0.7
026	35	32.1	7.5	1.5	30.5	7.5	1.5	24.8	7.4	1.2	22.2	7.3	1.1	19.8	7.2	0.9	16.4	7.2	0.8
033	35	39.4	9.5	1.9	37.5	9.4	1.8	31.1	9.2	1.5	27.5	9.1	1.3	22.3	9.0	1.1	18.4	8.9	0.9
017	40	21.4	5.6	1.0	20.4	5.6	1.0	15.9	5.6	0.8	14.5	5.5	0.7	13.4	5.5	0.6	-	-	-
021	40	26.4	6.9	1.3	25.2	6.8	1.2	20.1	6.7	1.0	18.6	6.7	0.9	16.9	6.6	0.8	-	-	-
026	40	31.5	8.4	1.5	30.1	8.4	1.4	24.0	8.3	1.2	21.7	8.1	1.0	19.1	8.1	0.9	-	-	-
033	40	38.7	10.4	1.9	36.8	10.3	1.8	30.2	10.1	1.4	26.9	9.9	1.3	21.2	9.8	1.0	-	-	-
017	45	21.1	6.3	1.0	20.1	6.3	1.0	15.5	6.3	0.7	14.2	6.2	0.7	12.9	6.2	0.6	-	-	-
021	45	26.0	7.6	1.2	24.8	7.4	1.2	19.5	7.2	0.9	18.1	7.2	0.9	16.2	7.1	0.8	-	-	-
026	45	31.0	9.3	1.5	29.6	9.3	1.4	23.3	9.3	1.1	21.2	9.2	1.0	18.3	9.2	0.9	-	-	-
033	45	37.9	11.4	1.8	36.2	11.3	1.7	29.1	11.3	1.4	26.2	11.2	1.3	20.3	11.2	1.0	-	-	-
017	50	20.8	7.0	1.0	19.9	7.0	1.0	14.9	6.9	0.7	13.9	6.9	0.7	-	-	-	-	-	-
021	50	25.5	9.3	1.2	24.4	9.1	1.2	18.8	9.0	0.9	17.6	9.0	0.8	-	-	-	-	-	-
026	50	30.5	10.8	1.5	29.2	10.7	1.4	22.5	10.6	1.1	19.9	10.6	1.0	-	-	-	-	-	-
033	50	37.2	12.7	1.8	35.6	12.6	1.7	28.2	12.4	1.3	25.4	12.3	1.2	-	-	-	-	-	-

Note: LWT-Leaving chilled water temperature
CAP-Heatling capacity
POWER-Chiller input power
FLOW-Water flow rate

Operating Range

30RB

Cooling mode

Evaporator	Minimum	Maximum
Entering water temperature at start-up	7.5℃	30℃
Leaving water temperature during operation	-10*℃	18℃
Entering/leaving water temperature difference	3K	10K
Condenser(Fin coil)		
Outdoor air temperature	-10	48

30RQ

Cooling mode

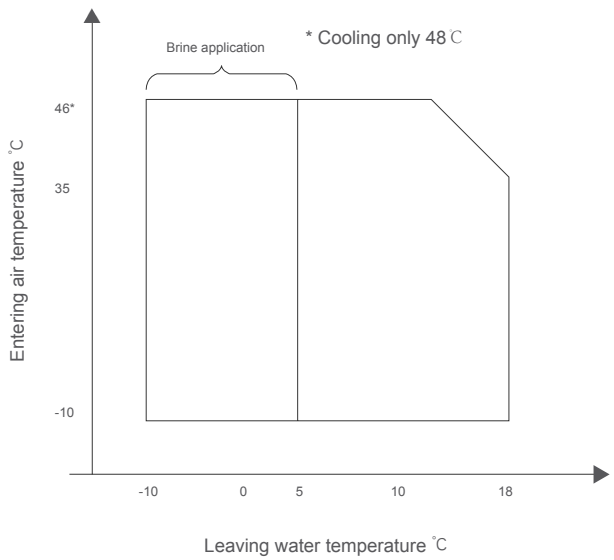
Water heat exchanger(Evaporator)	Minimum	Maximum
Entering water temperature at start-up	7.5℃	30℃
Leaving water temperature during operation	-10*℃	18℃
Entering/leaving water temperature difference	3K	10K
Condenser(Fin coil)		
Outdoor air temperature	-10	46

Heating mode

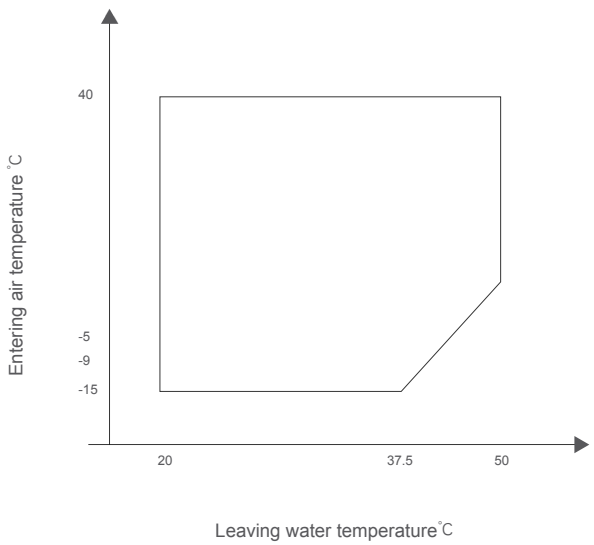
Water heat exchanger(Condenser)	Minimum	Maximum
Entering water temperature at start-up	3.3℃	45℃
Leaving water temperature during operation	20℃	50℃
Entering/leaving water temperature difference	3K	10K
Evaporator(Fin coil)		
Outdoor air temperature	-15	40

* The anti - freeze solution should be added in the water system if leaving temperature is lower than 5℃

Operating range-cooling

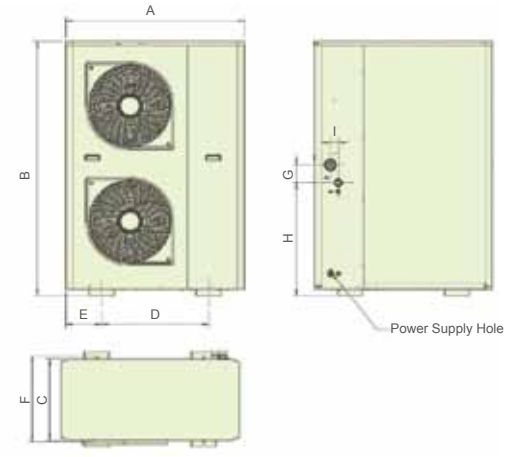


Operating range-heating

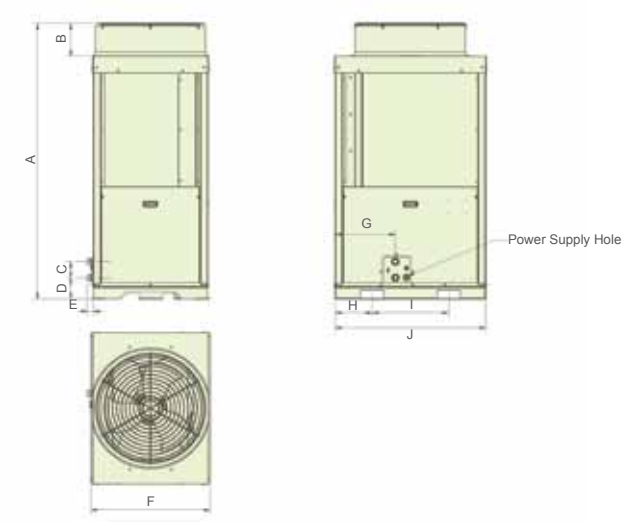


Dimensions / Clearances

30RB/RQ017~021



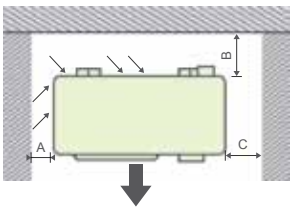
30RB/RQ026~033

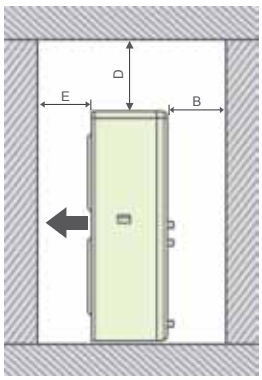


Model	A	B	C	D	E	F	G	H	I
30RB/RQ017	1100	1580	500	659	222	530	112	700	48
30RB/RQ021	1100	1580	500	659	222	530	112	700	48

Model	A	B	C	D	E	F	G	H	I	J
30RB/RQ026	1800	215	105	138	38	755	397	245	500	990
30RB/RQ033	1800	215	105	138	38	755	397	245	500	990

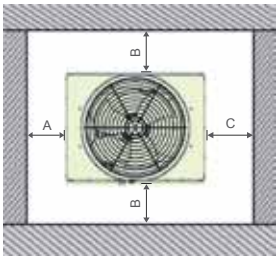
30RB/RQ017~021

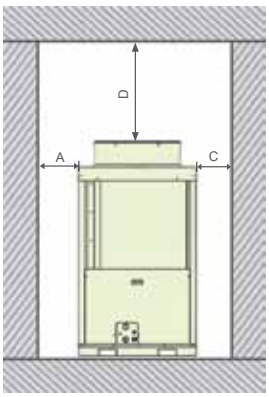




Model	A	B	C	D	E
30RB/RQ017	200	300	400	500	1000
30RB/RQ021	200	300	400	500	1000

30RB/RQ026~033

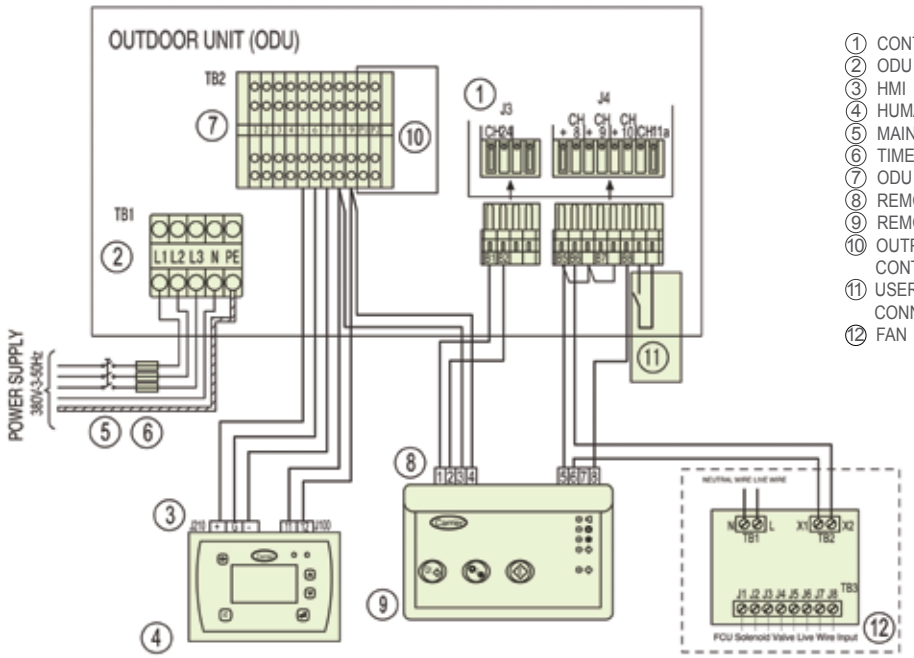




Model	A	B	C	D
30RB/RQ026	400	500	200	1800
30RB/RQ033	400	500	200	1800

Electrical connection

30RB017~021

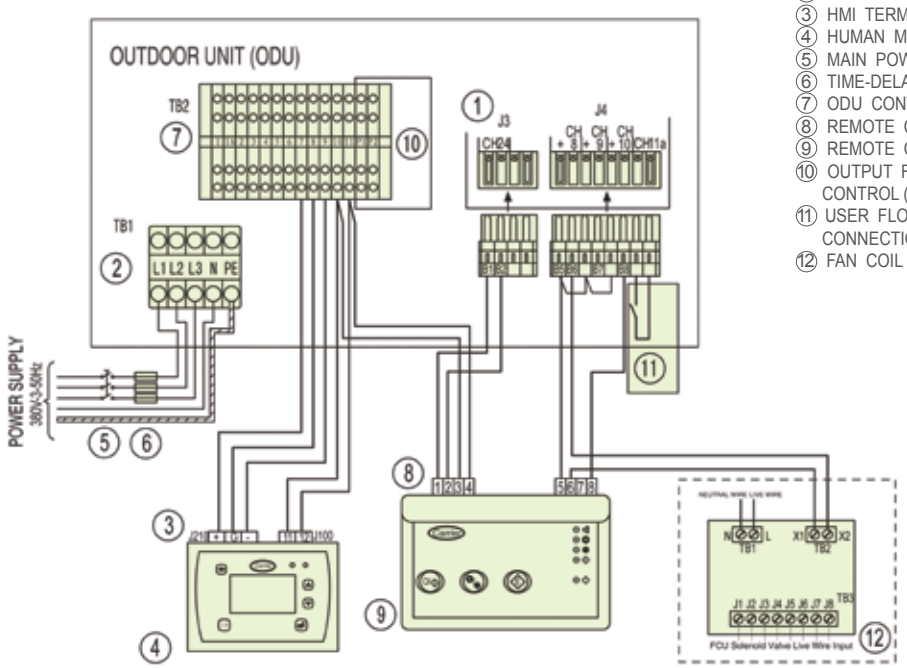


① CONTROL BOARD
② ODU POWER TERMINAL BLOCK
③ HMI TERMINAL BLOCK
④ HUMAN MACHINE INTERFACE (HMI)
⑤ MAIN POWER SWITCH
⑥ TIME-DELAY FUSE OR BREAKER
⑦ ODU CONTROLTERMINAL BLOCK
⑧ REMOTE CONTROLLER TERMINAL
⑨ REMOTE CONTROLLER
⑩ OUTPUT FOR USER UMP CONTROL (OPTION)
⑪ USER FLOW SWITCH CONNECTION (OPTION)
⑫ FAN COIL INTERLOCK CONTROLLER

LEGEND:

PE	EARTH
L1	LIVE POWER SUPPLY
L2	LIVE POWER SUPPLY
L3	LIVE POWER SUPPLY
N	NEUTRAL POWER SUPPLY

30RB026~033



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⑤ MAIN POWER SWITCH
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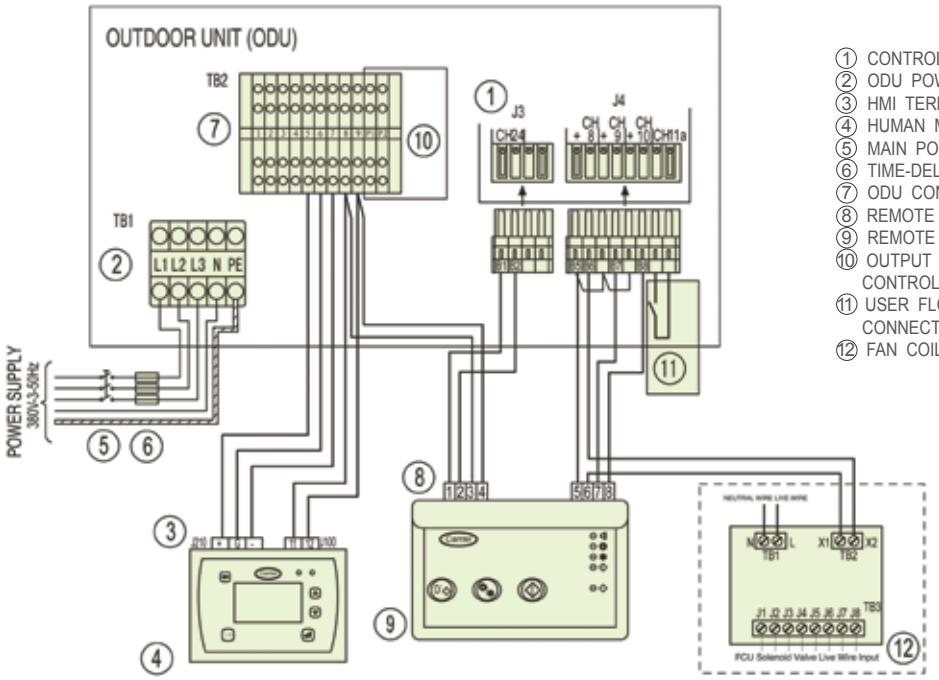
LEGEND:

PE	EARTH
L1	LIVE POWER SUPPLY
L2	LIVE POWER SUPPLY
L3	LIVE POWER SUPPLY
N	NEUTRAL POWER SUPPLY

Electrical connection

30RQ017~021



① CONTROL BOARD
② ODU POWER TERMINAL BLOCK
③ HMI TERMINAL BLOCK
④ HUMAN MACHINE INTERFACE (HMI)
⑤ MAIN POWER SWITCH
⑥ TIME-DELAY FUSE OR BREAKER
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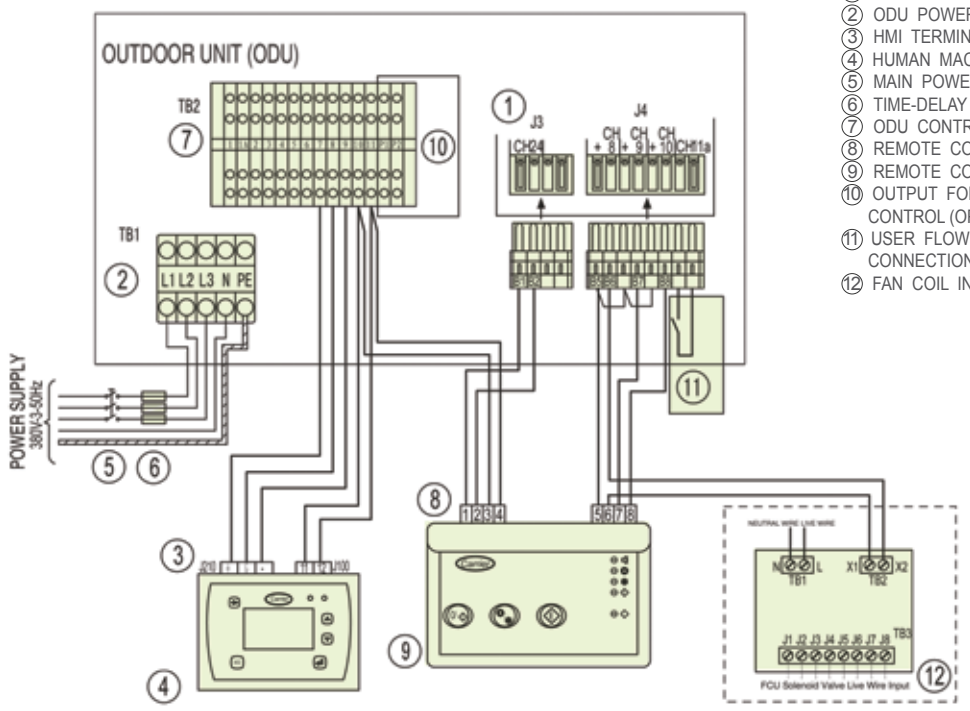
⑧ REMOTE CONTROLLER TERMINAL
⑨ REMOTE CONTROLLER
⑩ OUTPUT FOR USER UMP CONTROL (OPTION)
⑪ USER FLOW SWITCH CONNECTION (OPTION)
⑫ FAN COIL INTERLOCK CONTROLLER

LEGEND:

PE	EARTH
L1	LIVE POWER SUPPLY
L2	LIVE POWER SUPPLY
L3	LIVE POWER SUPPLY
N	NEUTRAL POWER SUPPLY

30RQ026~033



① CONTROL BOARD
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③ HMI TERMINAL BLOCK
④ HUMAN MACHINE INTERFACE (HMI)
⑤ MAIN POWER SWITCH
⑥ TIME-DELAY FUSE OR BREAKER
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⑧ REMOTE CONTROLLER TERMINAL
⑨ REMOTE CONTROLLER
⑩ OUTPUT FOR USER UMP CONTROL (OPTION)
⑪ USER FLOW SWITCH CONNECTION (OPTION)
⑫ FAN COIL INTERLOCK CONTROLLER

LEGEND:

PE	EARTH
L1	LIVE POWER SUPPLY
L2	LIVE POWER SUPPLY
L3	LIVE POWER SUPPLY
N	NEUTRAL POWER SUPPLY

Electrical connection

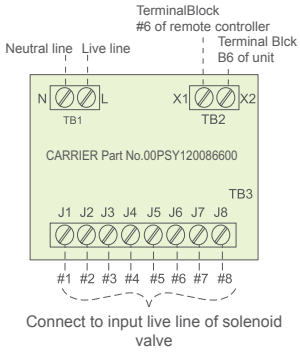
Wiring of interlock controller of fan coils

Installation instruction:

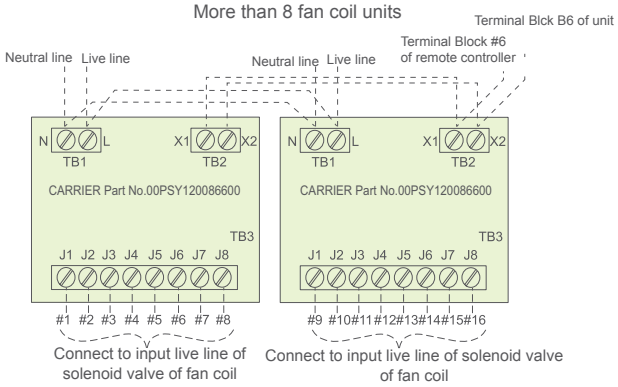
1. Please shut off the power before wiring.
2. The specs of wire purchased by customer is 0.5mm² BVR and the length is due to actual situation.Advised the length is within 100m
3. It is recommended that you shoud ensure one solenoid valve of fan coil is ON when the chiller is reset after alarm.
4. Please shut off the power before maintenance. Until to 10 seconds later, you can contact the touch screen after the capacitor fully discharge the energy.

The wiring diagram between fan coils and chiller

Less than 8 units

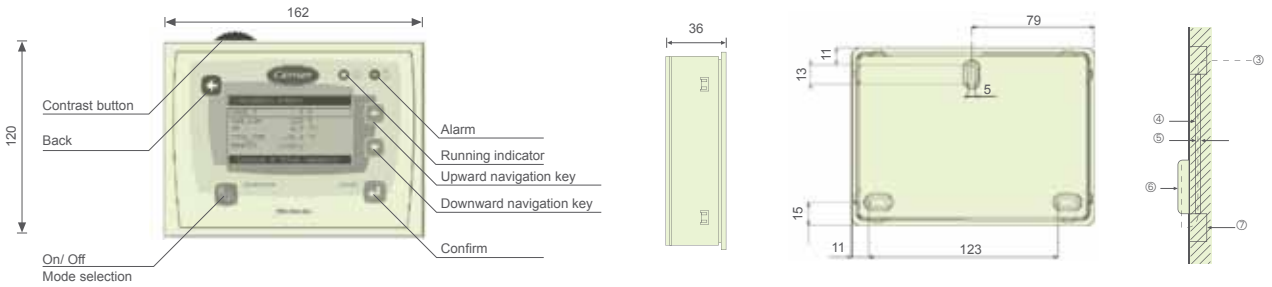


More than 8 fan coil units

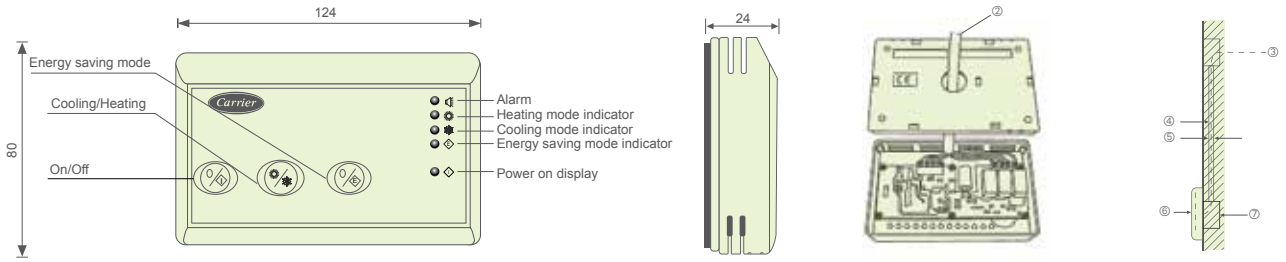


Controller installation & keyboard introduction

Pro-Dialog Plus Controller (Human Machine Interface) Demonstration



Remote controller Demonstration



② Cable
③ To 30RB/RQ chiller
④ Hard PVC pipe, Min. diameter 30mm
⑤ Wall with the thickness of around 30mm
⑥ Room controller
⑦ Wiring channels

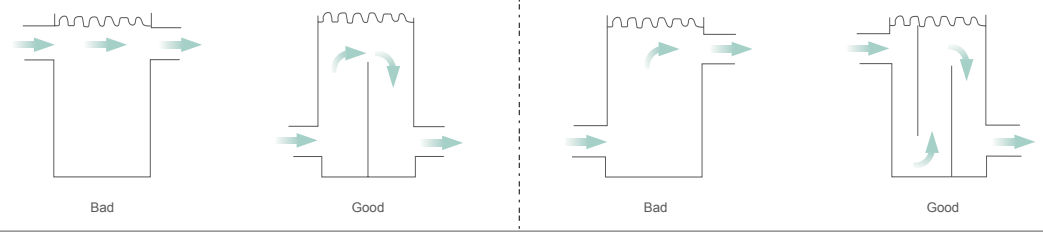
Unit supply area

		Min.	Max.
Power	380-3-50	342	418

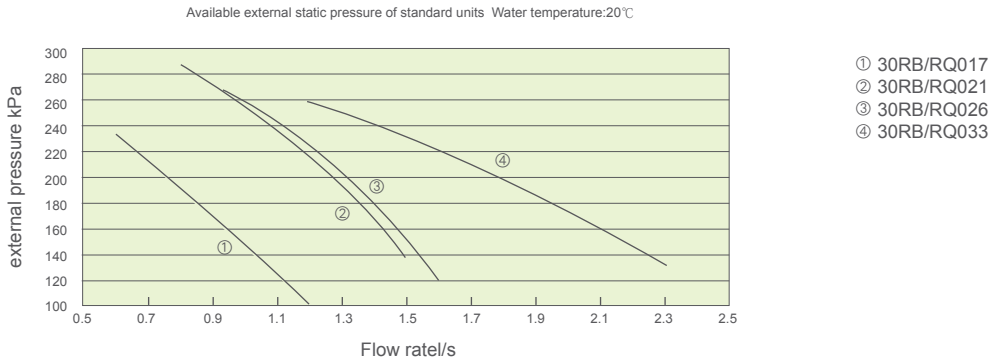
Water System Specifications

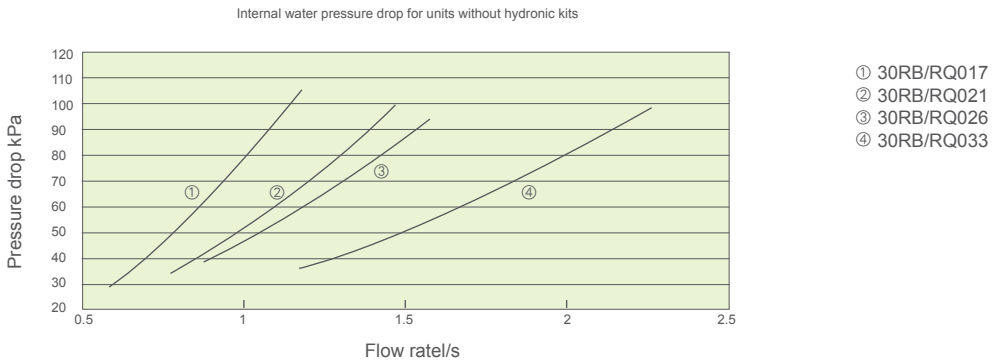
30RB/RQ	Model	017	021	026	033
Water system volume l	Min.	66	81	98	125
	30RQ Max.	93	114	147	188
	30RB Max.	125	155	195	240

It's often necessary to add a buffer water tank to the circuit in order to achieve the required volume. The tank must itself be internally baffled in order to ensure proper mixing of the liquid(water or brine). Refer to the examples below.



Pump Head - Flow rate Curve





Corrective Factors for EG solution

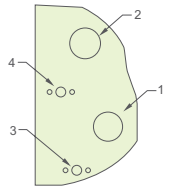
EG	10%	20%	30%	40%
Ice point	-4℃	-9℃	-15℃	-23℃
Capcity	0.996	0.991	0.983	0.974
Input power	0.990	0.978	0.964	1.008
Water velocity	1.000	0.979	0.979	1.025
Water Pressure drop	1.003	1.010	1.020	1.033

EG: Ethylene glycol

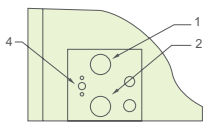
Water System Connection

Water connections

30RB/RQ017~021

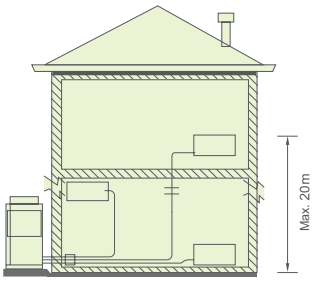


30RB/RQ026~033

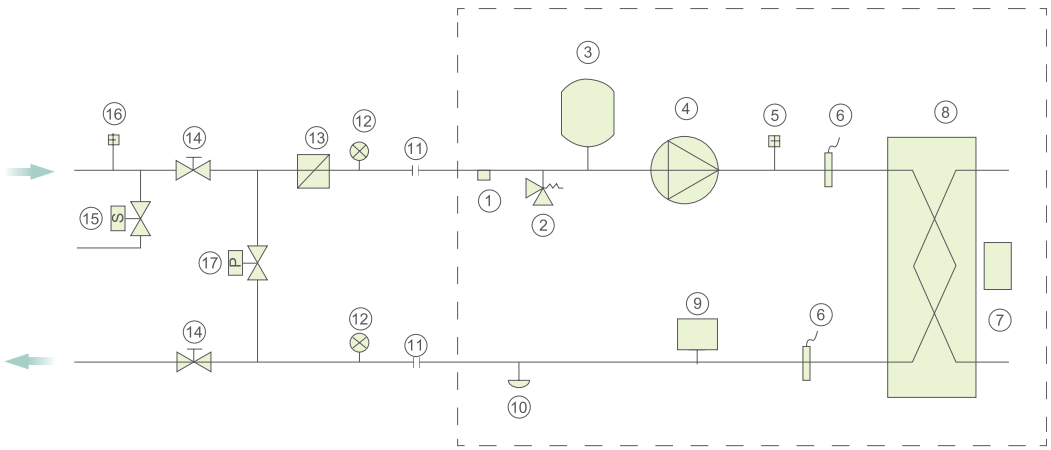


1 Unit water inlet Ø 1 1/4"F Gas
2 Unit water outlet Ø 1 1/4"F Gas
3 Drain valve
4 Manual air vent valve
Note: Drain valve is not included in the units without hydronic kits

Difference in height between water chiller and highest system point



Typical water circuit diagram



Hydronic kits in standard units Parts installed by users
1 Manual air vent valve
2 Safety valve (not included in the units without hydronic kits)
3 Expansion tank (not included in the units without hydronic kits)
4 Water Pump (not included in the units without hydronic kits)
5 Auto air vent valve (not included in the units without hydronic kits)
6 Water temperature sensor
7 BPHE heater
8 BPHE
9 Flow switch (not included in the units without hydronic kits)*
10 Drain valve (not included in the units without hydronic kits)*

Parts installed by users
11 Flexible connector
12 Pressure gauge
13 Water filter
14 Manual shut-off valve
15 Water filling valve (It is recommended to use auto-filling valve with 6 Water temperature sensor pressure relief function)
16 Air vent valve **

Note:
* For standard units 30RB/RQ017~021, flow switch and drain valve are installed on the water inlet pipe. Please note that the drain valve of these models can not evacuate water in BPHE. So users need to install a drain valve on water outlet pipe if the water in BPHE need be evacuated inwinter.
** Air vent valve must be installed in the highest position of the circuit.
For units without hydronic kits, users need to install all related parts referring to the above diagram.

Typical applications

Carrier is dedicated to improve your quality of life by creating comfortable, healthy environments in which to live. To ahieve this, we design and develop the appropriate air conditioning system in connection with various conditions, covering chiller, airside equipments and control system and so on a series of priducts. We can combine the most complete variety of products into appropriate air-condition systems to meet different demand of customers.

Aimming at villa, appartment, club, suppermarket and business hall, Carrier developed small central air conditioning system for client to provide cooling and heating, which integrated Aquasnap series air-cooled liquid chiller/heat pump, low noise fan coil and control.

Whatever extremely hot or severely cold, you can enjoy a comfortable life.

Recommended airside product

		001	002	003	004	005	006	008	010	012	014	Recommended applications
42CN	Cooling capacity (KW)	1.3	2.2	3.2	4.0	4.8	5.8	7.8	9.1	10.9	13.0	Hotel, Apartment, Villa and Office
	Heating capacity (KW)	2.1	3.4	5.0	6.2	7.5	9.0	12.2	14.2	17.0	20.2	Hotel, Apartment, Villa and Office
42GWC	Cooling capacity (KW)	-	-	2.4	4.0	4.7	5.9	8.3	11.0	-	-	Office, meeting room and other kinds of business occasions
	Heating capacity (KW)	-	-	4.5	6.5	7.7	9.9	12.5	16.9	-	-	Office, meeting room and other kinds of business occasions

Note: 1. Cooling capacity is messured at below conditions: Entering water temperature7℃ , Delta T5℃ ; Inlet air temperature 27℃ (DB)/19.5℃ (WB)
2. Heating capacity is messured at below conditions: Entering water temperature60℃ ; Inlet air tempture 21℃
3. Please contact local carrier sales entity if you need more information on airside products.

improve buildings™

Carrier improves the world around us; Carrier improves people's lives; our products and services improve building performance; our culture of improvement will not allow us to rest when it comes to the environment.

Carrier

United Technologies
Climate | Controls | Security

Version:	CAT_SNGA_E-1207_01_CHK
Supersede:	E-SNGA-1103-02
Effective Date:	July, 2012